

RINGKASAN

Sungai seringkali menjadi tempat pembuangan limbah cair bagi masyarakat yang tinggal disekitarnya. Industri tahu X merupakan satu diantara industri tahu yang berada di Kota Jambi dan belum memiliki IPAL untuk mengolah limbah cair yang dihasilkan. Limbah cair industri tahu mengandung zat organik yang tergolong tinggi sehingga berpotensi mencemari lingkungan. Berdasarkan hasil sampel limbah cair sebelum diolah didapatkan hasil laboratorium untuk kandungan BOD sebesar 3.075,92 mg/l, COD sebesar 10.766,01 mg/l, dan TSS sebesar 680 mg/l. Perancangan IPAL melibatkan perhitungan panjang dan lebar untuk tiap bak-bak pengolahan yang terdiri dari bak ekualisasi, biofilter *anaerob*, dan *aerob*. Setelah dilakukan pengolahan didapatkan hasil uji laboratorium kandungan BOD sebesar 2.198 mg/l, COD sebesar 6.998 mg/l, dan TSS sebesar 217 mg/l. Berdasarkan hasil tersebut didapatkan efisiensi pengolahan terhadap penurunan zat pencemar sebesar 30,79% untuk kandungan BOD, 35% kandungan COD, dan 68,08% untuk kandungan TSS. Hasil tersebut masih belum memenuhi baku mutu menurut peraturan menteri lingkungan hidup nomor 5 tahun 2014. Berdasarkan hasil penelitian yang telah dilakukan, bahwa terdapat beberapa penyebab pengolahan belum efektif, diantaranya bisa terjadi dikarenakan jumlah udara yang dibutuhkan, suhu, serta waktu tinggal yang harus disesuaikan untuk mendapatkan hasil pengolahan yang diinginkan sesuai baku mutu terkait.

Kata Kunci : pengolahan limbah, limbah cair, biofilter

SUMMARY

Liquid waste often becomes a dumping ground for people living nearby. The tofu industri The liquid waste from the tofu industri contains relatively high levels of organik substances so it has the potential to pollute the environment. Based on the results of liquid waste samples before processing, laboratory results were obtained for BOD content of 3.075.92 mg/l, COD of 10,766.01 mg/l, and TSS of 680 mg/l. WWTP design involves calculating the length and width for each treatment tank consisting of an equalization tank, anaerobic and aerobic biofilters. After processing, laboratory test results showed that the BOD content was 2,198 mg/l, COD was 6,998 mg/l, and TSS was 217 mg/l. Based on these results, it was found that the processing efficiency in reducing pollutants was 30.79% for BOD content, 35% for COD content, and 68.08% for TSS content. These results still do not meet the quality standards according to the Minister of Environment Regulation number 5 of 2014. Based on the results of research that has been carried out, there are several reasons why processing is not effective, including the amount of air needed, temperature and residence time that must be adjusted to suit the quality standards. obtain the desired processing results in accordance with the relevant quality standards.

Keyword : waste processing, liquid waste, biofilter